

Notice of Allowability

Application No.

10/714,464

Examiner

Mark Ruthkosky

Applicant(s)

KUSANO ET AL.

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/31/2007.
2. ☒ The allowed claim(s) is/are 1-5.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

Mark Ruthkosky 10-11-2007

Dr. Mark Ruthkosky
Primary Patent Examiner
Art Unit 1795

DETAILED ACTION

Response to Amendment

This paper is in response to applicant's amendment filed 7/31/2007

Claim Objections

The objection of claims 1-5 has been overcome by applicant's amendment.

Claim Rejections - 35 USC § 102

The rejection of claims 1-5 under 35 U.S.C. 102(b) as being anticipated by Katagiri et al. (US 2001/0015501) has been overcome by applicant's amendment to the claims.

Claim Rejections - 35 USC § 103

The rejection of claims 1-5 under 35 U.S.C. 103(a) as being unpatentable over Katagiri et al. (US 2001/0015501) in view of Shimanuki et al. (US 2002/0041985.)

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee. The application has been amended as follows:

Please cancel non-elected claims 6-20.

Allowable Subject Matter

Claims 1-5 are allowed.

The following is an examiner's statement of reasons for allowance:

The instant claims are to a fuel cell system comprising an anode side humidifier for humidifying a fuel gas and a cathode side humidifier for humidifying a reactant gas, wherein each humidifier includes a plurality of hollow fiber membrane modules for migrating moisture between a supply gas, which is supplied to a fuel cell, and an exhaust gas, which is exhausted from the fuel cell to thereby humidify the supply gas, a pair of heads, which hold both ends of said hollow fiber membrane modules, a connecting member which connects each of the heads, and a device for warming the supply gas composed of conduits through which a cooling medium exhausted from the fuel cell is passed, said device including a first conduit disposed along said connecting member a second conduit disposed around an outer circumference of one of said pair of heads, and a third conduit disposed around an outer circumference of the other of said pair of heads, wherein said device for warming the supply gas is configured to first warm a humidifier at an outlet side of the supply gas, and subsequently warm a humidifier at an inlet side of the supply gas. The prior art does not teach a fuel cell including this structure.

The most pertinent prior art has been made of record. Katagiri et al. (US 2001/0015501) teaches a humidifier for humidifying a fuel cell composed of a cathode side humidifier possessing a plurality of hollow fiber membrane modules for migrating moisture between a supply gas, which is supplied to a fuel cell, and an exhaust gas, which is exhausted from the fuel cell to thereby humidify the supply gas, said humidifier comprising a pair of heads which hold

Art Unit: 1795

both ends of said hollow fiber membrane modules (p. 4-8), a connecting member which connects each of the heads (figure 1.) The humidifier includes a device for warming the supply gas composed of conduits through which a cooling medium exhausted from the fuel cell is passed, wherein said device for warming the supply gas is configured to first warm a humidifier at an outlet side of the supply gas, and subsequently warm a humidifier at an inlet side of the supply gas (see figures 12-13 and p. 107-111.) The heated fuel cell coolant flows with the exhaust gas into the humidifier and heats the humidifier first at an outlet side of the supply gas, and subsequently at an inlet side of the supply gas. The reference does not teach an anode side humidifier employing an exhaust gas as a fuel-humidifying source. Further, Katagiri does not teach a device for warming the supply gas composed of conduits through which a cooling medium exhausted from the fuel cell is passed, said device including a first conduit disposed along said connecting member a second conduit disposed around an outer circumference of one of said pair of heads, and a third conduit disposed around an outer circumference of the other of said pair of heads. As the prior art does not teach the claimed invention, or render the claimed invention obvious, the claims are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Art Unit: 1795

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

Mark Ruthkosky

Primary Patent Examiner

Art Unit 1745

Mark Ruthkosky
10/11/07